

**What is claimed is:**

1 A moving image reproduction system comprising:

means for acquiring a scanning line value of a display  
and adjusting a timing for display changeover  
5 specification.

2 The system defined in Claim 1, further comprising:

a frame buffer including a plurality of buffers;

a storage for storing moving image data compressive  
encoded in a predetermined image compression encoding  
10 scheme;

a video decoder for reading out compressed image data  
from said storage, decoding said compressed image data  
every one frame, and storing decoded image data into said  
frame buffer;

15 an image storage buffer switch for switching its mode  
every time image data for one frame is decoded and  
controlling so as to always store a previously decoded  
image and a currently decoded image into said buffer  
memory;

20 a display controller for switching between said plural  
buffers, to be displayed during the next vertical blanking  
period, after reception of said display changeover  
specification and displaying image data on said display;  
and

25 a timing adjuster for acquiring a current scanning

line from said display controller and adjusting the timing with which said display changeover specification is issued, in accordance with said scanning line value.

3 The system defined in Claim 2, wherein said storage  
5 stores compressed image data; and wherein said frame  
buffer stores moving image data decoded by said video  
decoder; and wherein said plural buffers, specified by  
said image storage buffer switch, stores moving image data  
decoded by said video decoder; and wherein said timing  
10 adjuster acquires a current scanning line from said  
display controller and adjusts the timing with which said  
display changeover specification is issued, in accordance  
with the current scan line; and wherein said display  
controller switches between said plural buffers to be  
15 displayed during the next vertical blanking period after  
reception of said display changeover specification and  
then displays an image on said display.

4 The system defined in Claim 1, further comprising:

a frame buffer including a plurality of buffers;

20 a storage for storing moving image data compressive  
encoded in a predetermined image compression encoding  
scheme;

a video decoder for reading out compressed image data  
from said storage, decoding said compressed image data  
25 every one frame, and storing decoded image data into said

frame buffer;

an image storage buffer switch for switching its mode every time image data for one frame is decoded and controlling so as to always store a previously decoded image and a currently decoded image into said buffer memory;

a display controller for switching between said plural buffers to be displayed during the next vertical blanking period and displaying image data on said display, after reception of said display changeover specification; and

a timing adjuster for acquiring a scanning line, currently being drawn by said display, from said display controller and adjusting the timing with which said display changeover specification is issued, in accordance with said scanning line value.

5 The system defined in Claim 4, wherein said storage stores compressed image data; and wherein said frame buffer stores moving image data decoded by said video decoder; and wherein said plural buffers, specified by said image storage buffer switch, stores moving image data decoded by said video decoder; and wherein said timing adjuster acquires a scanning line currently being drawn by said display, from said display controller, and adjusts the timing with which said display changeover specification is issued, in accordance with the current

scan line; and wherein said display controller switches between said plural buffers to be displayed during the next vertical blanking period after reception of said display changeover specification and displaying an image on said display.

6 A moving image reproduction system comprising:

means for acquiring, when one frame is divided two half fields for displaying, a display scanning line value and adjusting the timing of display changeover specification to display a half field to be previously displayed.

7 The system defined in Claim 6, further comprising:

a frame buffer including a plurality of buffers;

a storage for storing moving image data compressive encoded in a predetermined image compression encoding scheme;

a video decoder for reading out compressed image data from said storage, decoding said compressed image data every one frame, and storing decoded image data into said frame buffer;

an image storage buffer switch for switching its mode every time image data for one frame is decoded and controlling so as to always store a previously decoded image and a currently decoded image into said buffer memory;

a display controller for switching between said plural buffers, to be displayed during the next vertical blanking period, after reception of said display changeover specification and displaying image data on said display;  
5 and

a timing adjuster for acquiring a current scanning line from said display controller and adjusting the timing with which said display changeover specification is issued, in accordance with said scanning line value.

10 8 The system defined in Claim 7, wherein said storage stores compressed image data; and wherein said frame buffer stores moving image data decoded by said video decoder; and wherein said plural buffers, specified by said image storage buffer switch, stores moving image data  
15 decoded by said video decoder; and wherein said timing adjuster acquires a current scanning line from said display controller and adjusts the timing with which said display changeover specification is issued, in accordance with the current scan line; and wherein said display  
20 controller switches between said plural buffers to be displayed during the next vertical blanking period after reception of said display changeover specification and then displays an image on said display.

9 The system defined in Claim 6, further comprising:

25 a frame buffer including a plurality of buffers;

a storage for storing moving image data compressive encoded in a predetermined image compression encoding scheme;

5 a video decoder for reading out compressed image data from said storage, decoding said compressed image data every one frame, and storing decoded image data into said frame buffer;

10 an image storage buffer switch for switching its mode every time image data for one frame is decoded and controlling so as to always store a previously decoded image and a currently decoded image into said buffer memory;

15 a display controller for switching between said plural buffers to be displayed during the next vertical blanking period and displaying image data on said display, after reception of said display changeover specification; and

20 a timing adjuster for acquiring a scanning line, currently being drawn by said display, from said display controller and adjusting the timing with which said display changeover specification is issued, in accordance with said scanning line value.

25 10 The system defined in Claim 9, wherein said storage stores compressed image data; and wherein said frame buffer stores moving image data decoded by said video decoder; and wherein said plural buffers, specified by

said image storage buffer switch, stores moving image data decoded by said video decoder; and wherein said timing adjuster acquires a scanning line currently being drawn by said display, from said display controller, and adjusts the timing with which said display changeover specification is issued, in accordance with the current scan line; and wherein said display controller switches between said plural buffers to be displayed during the next vertical blanking period after reception of said display changeover specification and displaying an image on said display.

11 A moving image reproduction system comprising:

means for smoothly reproducing moving image data by adjusting the timing with which display changeover specification is issued, based on a current scanning line value.

12 The system defined in Claim 11, further comprising:

a frame buffer including a plurality of buffers;

a storage for storing moving image data compressive encoded in a predetermined image compression encoding scheme;

a video decoder for reading out compressed image data from said storage, decoding said compressed image data every one frame, and storing decoded image data into said frame buffer;

an image storage buffer switch for switching its mode every time image data for one frame is decoded and controlling so as to always store a previously decoded image and a currently decoded image into said buffer memory;

a display controller for switching between said plural buffers, to be displayed during the next vertical blanking period, after reception of said display changeover specification and displaying image data on said display; and

a timing adjuster for acquiring a current scanning line from said display controller and adjusting the timing with which said display changeover specification is issued, in accordance with said scanning line value.

13 The system defined in Claim 12, wherein said storage stores compressed image data; and wherein said frame buffer stores moving image data decoded by said video decoder; and wherein said plural buffers, specified by said image storage buffer switch, stores moving image data decoded by said video decoder; and wherein said timing adjuster acquires a current scanning line from said display controller and adjusts the timing with which said display changeover specification is issued, in accordance with the current scan line; and wherein said display controller switches between said plural buffers to be



displayed during the next vertical blanking period after reception of said display changeover specification and then displays an image on said display.

14 The system defined in Claim 11, further comprising:

5 a frame buffer including a plurality of buffers;

a storage for storing moving image data compressive encoded in a predetermined image compression encoding scheme;

10 a video decoder for reading out compressed image data from said storage, decoding said compressed image data every one frame, and storing decoded image data into said frame buffer;

15 an image storage buffer switch for switching its mode every time image data for one frame is decoded and controlling so as to always store a previously decoded image and a currently decoded image into said buffer memory;

20 a display controller for switching between said plural buffers to be displayed during the next vertical blanking period and displaying image data on said display, after reception of said display changeover specification; and

25 a timing adjuster for acquiring a scanning line, currently being drawn by said display, from said display controller and adjusting the timing with which said display changeover specification is issued, in accordance

with said scanning line value.

15 The system defined in Claim 14, wherein said storage stores compressed image data; and wherein said frame buffer stores moving image data decoded by said video decoder; and wherein said plural buffers, specified by  
5 said image storage buffer switch, stores moving image data decoded by said video decoder; and wherein said timing adjuster acquires a scanning line currently being drawn by said display, from said display controller, and adjusts the timing with which said display changeover  
10 specification is issued, in accordance with the current scan line; and wherein said display controller switches between said plural buffers to be displayed during the next vertical blanking period after reception of said display changeover specification and displaying an image  
15 on said display.

16 A moving image reproduction system comprising:  
means for adjusting the display timing of a half field to be previously displayed, with said display scanning  
20 line value.

17 The system defined in Claim 16, further comprising:  
a frame buffer including a plurality of buffers;  
a storage for storing moving image data compressive encoded in a predetermined image compression encoding  
25 scheme;

a video decoder for reading out compressed image data from said storage, decoding said compressed image data every one frame, and storing decoded image data into said frame buffer;

5 an image storage buffer switch for switching its mode every time image data for one frame is decoded and controlling so as to always store a previously decoded image and a currently decoded image into said buffer memory;

10 a display controller for switching between said plural buffers, to be displayed during the next vertical blanking period, after reception of said display changeover specification and displaying image data on said display; and

15 a timing adjuster for acquiring a current scanning line from said display controller and adjusting the timing with which said display changeover specification is issued, in accordance with said scanning line value.

18 The system defined in Claim 17, wherein said storage stores compressed image data; and wherein said frame buffer stores moving image data decoded by said video decoder; and wherein said plural buffers, specified by  
20 said image storage buffer switch, stores moving image data decoded by said video decoder; and wherein said timing  
25 adjuster acquires a current scanning line from said

display controller and adjusts the timing with which said display changeover specification is issued, in accordance with the current scan line; and wherein said display controller switches between said plural buffers to be displayed during the next vertical blanking period after reception of said display changeover specification and then displays an image on said display.

19 The system defined in Claim 16, further comprising:

a frame buffer including a plurality of buffers;

a storage for storing moving image data compressive encoded in a predetermined image compression encoding scheme;

a video decoder for reading out compressed image data from said storage, decoding said compressed image data every one frame, and storing decoded image data into said frame buffer;

an image storage buffer switch for switching its mode every time image data for one frame is decoded and controlling so as to always store a previously decoded image and a currently decoded image into said buffer memory;

a display controller for switching between said plural buffers to be displayed during the next vertical blanking period and displaying image data on said display, after reception of said display changeover specification; and

a timing adjuster for acquiring a scanning line,  
currently being drawn by said display, from said display  
controller and adjusting the timing with which said  
display changeover specification is issued, in accordance  
5 with said scanning line value.

20 The system defined in Claim 19, wherein said storage  
stores compressed image data; and wherein said frame  
buffer stores moving image data decoded by said video  
decoder; and wherein said plural buffers, specified by  
10 said image storage buffer switch, stores moving image data  
decoded by said video decoder; and wherein said timing  
adjuster acquires a scanning line currently being drawn by  
said display, from said display controller, and adjusts  
the timing with which said display changeover  
15 specification is issued, in accordance with the current  
scan line; and wherein said display controller switches  
between said plural buffers to be displayed during the  
next vertical blanking period after reception of said  
display changeover specification and displaying an image  
20 on said display.

21 A moving image reproduction method comprising the  
steps of:

acquiring a display scanning line value; and  
adjusting the timing of display changeover  
25 specification.

22 The method defined in Claim 21, further comprising the steps of:

storing moving image data compressive encoded in a predetermined image compression encoding scheme, into a memory;

reading out compressed image data from said memory, decoding said compressed image data every one frame, and storing decoded image data into a frame buffer using a video decoder, said frame buffer including a plurality of buffers;

switching its mode every time image data for one frame is decoded and controlling, using an image storage buffer switch, so as to always store a previously decoded image and a currently decoded image into said buffer memory;

switching between said plural buffers to be displayed during the next vertical blanking period after reception of said display changeover specification and displaying image data on said display; and

acquiring, using a timing adjuster, a current scanning line from said display controller and adjusting the timing with which said display changeover specification is issued, in accordance with said scanning line value.

23 The system defined in Claim 22, further comprising the steps of:

storing compressed moving image data using said

memory;

storing moving image data decoded by said video  
decoder, into said frame buffer;

storing moving image data decoded in said video  
5 decoder into plural buffers specified by said image buffer  
changeover switch;

acquiring a current scanning line from said display  
controller and adjusting the timing with which said  
display changeover specification is issued, in accordance  
10 with the current scanning line, by means of said timing  
adjuster; and

switching between said plural buffers to be displayed  
during the next vertical blanking period, by means of said  
display controller, after reception of said display  
15 changeover specification and then displaying an image on  
said display.

24 The system defined in Claim 21, further comprising:

storing moving image data compressive encoded in a  
predetermined image compression encoding scheme, into a  
20 memory;

reading out compressed image data from said memory,  
decoding said compressed image data every one frame, and  
storing decoded image data into a frame buffer by means of  
a video decoder, said frame buffer including a plurality  
25 of buffers;

switching its mode every time image data for one frame is decoded and controlling so as to always store a previously decoded image and a currently decoded image into said frame buffer, by means of an image storage buffer switch;

switching between said plural buffers to be displayed during the next vertical blanking period after reception of said display changeover specification and displaying image data on said display, by means of a display controller; and

acquiring a scanning line, currently being drawn by said display, from said display controller and adjusting the timing with which said display changeover specification is issued in accordance with said scanning line value, by means of a timing adjuster.

The system defined in Claim 24, further comprising the steps of:

storing compressed moving image data by means of a storage;

storing moving image data decoded by said video decoder into said frame buffer;

storing moving image data decoded by said video decoder into plural buffers specified by said image storage buffer switch;

acquiring, by means of said timing adjuster, a



scanning line currently being drawn by said display, from said display controller, and adjusting the timing with which said display changeover specification is issued in accordance with the current scan line; and

5           switching, by means of said display controller, between said plural buffers to be displayed during the next vertical blanking period after reception of said display changeover specification and then displaying an image on said display.

10       26 A moving image reproduction method comprising the steps of:

          acquiring, when one frame is divided two half fields for displaying, a display scanning line value to display a half field to be previously displayed; and

15           adjusting the timing of display changeover specification.

27 The method defined in Claim 26, further comprising the steps of:

20           storing moving image data compressive encoded in a predetermined image compression encoding scheme, into a memory;

          reading out compressed image data from said memory, decoding said compressed image data every one frame, and storing decoded image data into a frame buffer using a video decoder, said frame buffer including a plurality of

25

buffers;

switching its mode every time image data for one frame  
is decoded and controlling, using an image storage buffer  
switch, so as to always store a previously decoded image  
5 and a currently decoded image into said buffer memory;

switching between said plural buffers to be displayed  
during the next vertical blanking period after reception  
of said display changeover specification and displaying  
image data on said display; and

10 acquiring, using a timing adjuster, a current scanning  
line from said display controller and adjusting the timing  
with which said display changeover specification is issued,  
in accordance with said scanning line value.

28 The system defined in Claim 27, further comprising the  
15 steps of:

storing compressed moving image data using said  
memory;

storing moving image data decoded by said video  
decoder, into said frame buffer;

20 storing moving image data decoded in said video  
decoder into plural buffers specified by said image buffer  
changeover switch;

acquiring a current scanning line from said display  
controller and adjusting the timing with which said  
25 display changeover specification is issued, in accordance

with the current scanning line, by means of said timing adjuster; and

switching between said plural buffers to be displayed during the next vertical blanking period, by means of said display controller, after reception of said display changeover specification and then displaying an image on said display.

29 The system defined in Claim 26, further comprising:

storing moving image data compressive encoded in a predetermined image compression encoding scheme, into a memory;

reading out compressed image data from said memory, decoding said compressed image data every one frame, and storing decoded image data into a frame buffer by means of a video decoder, said frame buffer including a plurality of buffers;

switching its mode every time image data for one frame is decoded and controlling so as to always store a previously decoded image and a currently decoded image into said frame buffer, by means of an image storage buffer switch;

switching between said plural buffers to be displayed during the next vertical blanking period after reception of said display changeover specification and displaying image data on said display, by means of a display

controller; and

acquiring a scanning line, currently being drawn by  
said display, from said display controller and adjusting  
the timing with which said display changeover  
specification is issued in accordance with said scanning  
line value, by means of a timing adjuster.

30 The system defined in Claim 29, further comprising the  
steps of:

storing compressed moving image data by means of a  
storage;

storing moving image data decoded by said video  
decoder into said frame buffer;

storing moving image data decoded by said video  
decoder into plural buffers specified by said image  
storage buffer switch;

acquiring, by means of said timing adjuster, a  
scanning line currently being drawn by said display, from  
said display controller, and adjusting the timing with  
which said display changeover specification is issued in  
accordance with the current scan line; and

switching, by means of said display controller,  
between said plural buffers to be displayed during the  
next vertical blanking period after reception of said  
display changeover specification and then displaying an  
image on said display.

31 A moving image reproduction method comprising the steps of:

adjusting the timing with which display changeover specification is issued, based on a current scanning line value; and

smoothly reproducing moving image data.

32 The method defined in Claim 31, further comprising the steps of:

storing moving image data compressive encoded in a predetermined image compression encoding scheme, into a memory;

reading out compressed image data from said memory, decoding said compressed image data every one frame, and storing decoded image data into a frame buffer using a video decoder, said frame buffer including a plurality of buffers;

switching its mode every time image data for one frame is decoded and controlling, using an image storage buffer switch, so as to always store a previously decoded image and a currently decoded image into said buffer memory;

switching between said plural buffers to be displayed during the next vertical blanking period after reception of said display changeover specification and displaying image data on said display; and

acquiring, using a timing adjuster, a current scanning

line from said display controller and adjusting the timing with which said display changeover specification is issued, in accordance with said scanning line value.

33 The system defined in Claim 32, further comprising the steps of:

storing compressed moving image data using said memory;

storing moving image data decoded by said video decoder, into said frame buffer;

storing moving image data decoded in said video decoder into plural buffers specified by said image buffer changeover switch;

acquiring a current scanning line from said display controller and adjusting the timing with which said display changeover specification is issued, in accordance with the current scanning line, by means of said timing adjuster; and

switching between said plural buffers to be displayed during the next vertical blanking period, by means of said display controller, after reception of said display changeover specification and then displaying an image on said display.

34 The system defined in Claim 31, further comprising:

storing moving image data compressive encoded in a predetermined image compression encoding scheme, into a

memory;

reading out compressed image data from said memory,  
decoding said compressed image data every one frame, and  
storing decoded image data into a frame buffer by means of  
5 a video decoder, said frame buffer including a plurality  
of buffers;

switching its mode every time image data for one frame  
is decoded and controlling so as to always store a  
previously decoded image and a currently decoded image  
10 into said frame buffer, by means of an image storage  
buffer switch;

switching between said plural buffers to be displayed  
during the next vertical blanking period after reception  
of said display changeover specification and displaying  
15 image data on said display, by means of a display  
controller; and

acquiring a scanning line, currently being drawn by  
said display, from said display controller and adjusting  
the timing with which said display changeover  
20 specification is issued in accordance with said scanning  
line value, by means of a timing adjuster.

35 The system defined in Claim 34, further comprising the  
steps of:

storing compressed moving image data by means of a  
25 storage;

storing moving image data decoded by said video  
decoder into said frame buffer;

storing moving image data decoded by said video  
decoder into plural buffers specified by said image  
storage buffer switch;

acquiring, by means of said timing adjuster, a  
scanning line currently being drawn by said display, from  
said display controller, and adjusting the timing with  
which said display changeover specification is issued in  
accordance with the current scan line; and

switching, by means of said display controller,  
between said plural buffers to be displayed during the  
next vertical blanking period after reception of said  
display changeover specification and then displaying an  
image on said display.

36 A moving image reproduction method comprising the  
steps of:

adjusting the display timing of a half field to be  
previously displayed, in accordance with said display  
scanning line value.

37 The method defined in Claim 36, further comprising the  
steps of:

storing moving image data compressive encoded in a  
predetermined image compression encoding scheme, into a  
memory;



reading out compressed image data from said memory,  
decoding said compressed image data every one frame, and  
storing decoded image data into a frame buffer using a  
video decoder, said frame buffer including a plurality of  
5 buffers;

switching its mode every time image data for one frame  
is decoded and controlling, using an image storage buffer  
switch, so as to always store a previously decoded image  
and a currently decoded image into said buffer memory;

10 switching between said plural buffers to be displayed  
during the next vertical blanking period after reception  
of said display changeover specification and displaying  
image data on said display; and

acquiring, using a timing adjuster, a current scanning  
15 line from said display controller and adjusting the timing  
with which said display changeover specification is issued,  
in accordance with said scanning line value.

38 The system defined in Claim 37, further comprising the  
steps of:

20 storing compressed moving image data using said  
memory;

storing moving image data decoded by said video  
decoder, into said frame buffer;

25 storing moving image data decoded in said video  
decoder into plural buffers specified by said image buffer

changeover switch;

acquiring a current scanning line from said display controller and adjusting the timing with which said display changeover specification is issued, in accordance with the current scanning line, by means of said timing adjuster; and

switching between said plural buffers to be displayed during the next vertical blanking period, by means of said display controller, after reception of said display changeover specification and then displaying an image on said display.

39 The system defined in Claim 36, further comprising:

storing moving image data compressive encoded in a predetermined image compression encoding scheme, into a memory;

reading out compressed image data from said memory, decoding said compressed image data every one frame, and storing decoded image data into a frame buffer by means of a video decoder, said frame buffer including a plurality of buffers;

switching its mode every time image data for one frame is decoded and controlling so as to always store a previously decoded image and a currently decoded image into said frame buffer, by means of an image storage buffer switch;

switching between said plural buffers to be displayed during the next vertical blanking period after reception of said display changeover specification and displaying image data on said display, by means of a display controller; and

acquiring a scanning line, currently being drawn by said display, from said display controller and adjusting the timing with which said display changeover specification is issued in accordance with said scanning line value, by means of a timing adjuster.

40 The system defined in Claim 39, further comprising the steps of:

storing compressed moving image data by means of a storage;

storing moving image data decoded by said video decoder into said frame buffer;

storing moving image data decoded by said video decoder into plural buffers specified by said image storage buffer switch;

acquiring, by means of said timing adjuster, a scanning line currently being drawn by said display, from said display controller, and adjusting the timing with which said display changeover specification is issued in accordance with the current scan line; and

switching, by means of said display controller,

### 3. Results